## CLAIM LISTING

1. (Currently amended) ~~A semiconductor~~ An optical waveguiding device for guiding therethrough light of a predetermined wavelength, the device formed of semiconductor material, the device comprising:

a first cladding layer;

a second cladding layer; and

a waveguiding layer disposed between the first and second cladding layers and having a substantially higher refractive index than said first and second cladding layers;

wherein at least one of the first and second cladding layers includes a beam control layer in which ~~a property~~ the refractive index of the semiconductor material gradually varies, as seen by light propagating through the device, as a function of depth through the layer, the beam control layer including a first sub-layer in which the ~~property~~ the refractive index varies gradually from a first level to a second level, and a second sub-layer contiguous with the first sub-layer in which the ~~property~~ the refractive index varies gradually from said second level to a third level, the third level being substantially equal to the first level.

2. (Canceled)

3. (Currently amended) The device of claim 1 in which a further ~~the~~ property of the semiconductor material that varies as a function of the depth through the layer is ~~20~~ the composition ratio of the material.

4. (Previously presented) The device of claim 1 in which the first sub-layer provides a gradually decreasing conduction band edge, and the second sub-layer provides a gradually increasing conduction band edge.

5. (Currently amended) The device of claim 1 in which the first sub-layer provides a gradually increasing refractive index as a function of proximity to the second sub-layer and the second sub-layer provides a gradually decreasing refractive index as a function of remoteness from the first sub-layer.

6. (Canceled)

7. (Currently amended) The device of claim 1 in which the first sub-layer is adjacent a cladding layer, the first level ~~is~~ being substantially equal to the level of the ~~property~~ refractive index in the adjacent cladding layer.

8. (Currently amended) The device of claim 1 in which the second sub-layer is adjacent a cladding layer, the third level ~~is~~ being substantially equal to the level of the ~~property~~ refractive index in the adjacent cladding layer.

9. (Currently amended) The device of claim 1 in which the ~~property~~ refractive index of the first sub-layer varies between the first level and the second level in a substantially linear manner.

10. (Currently amended) The device of claim 1 in which the ~~property~~ refractive index of the second sub-layer varies between the second level and the third level in a substantially linear manner.

11. (Previously presented) The device of claim 1 in which the first and second cladding layers are formed from a GaAs-based or InP-based system.

12. (Previously presented) The device of claim 1 in which the waveguiding layer is a quantum well layer.

13. (Currently amended) The device of claim 1 further comprising a substrate, the first cladding layer being a layer most proximal to the substrate, the ~~mode~~ beam control layer being provided within the first cladding layer.

14. (Original) The device of claim 13 in which the substrate comprises GaAs, the first cladding layer and beam control layer comprises n-type A1GaAs, and the second cladding layer comprises p-doped AlGaAs.

15. (Previously presented) The device of claim 1 including a ridge waveguide.

16. (Currently amended) The device of claim 1 ~~in which the property is refractive index, and~~ in which the refractive index is gradually varied in the first and second beam control sub-layers by gradually varying thicknesses of alternating sub-sub-layers of the first and second sub-layers

of different refractive index, each alternating sub-sub-layer having a thickness substantially less than a wavelength of light.

17. (Previously presented) The device of claim 12 comprising any one or more of a laser, an optical modulator and an optical amplifier.

18. (Currently amended) A method of forming ~~a semiconductor~~ an optical waveguiding device for propagating therethrough light of a predetermined wavelength, the device formed from semiconductor material, the method comprising the steps of:

forming a first cladding layer on a substrate;

forming a waveguiding layer on said first cladding layer, the waveguiding layer having a refractive index substantially greater than the first cladding layer;

forming a second cladding layer on said waveguiding layer, the second cladding layer having a refractive index substantially less than the waveguiding layer; and

during the step of forming said first cladding layer, forming a beam control layer therein by gradually modifying deposition conditions so as to vary, as seen by the light propagating through the device, ~~a property~~ the refractive index of the semiconductor material as a function of depth through the beam control layer, such that the beam control layer includes a first sub-layer in which the ~~property~~ refractive index varies gradually from a first level to a second level, and a second sub-layer contiguous with the first sub-layer in which the ~~property~~ refractive index varies gradually from said second level to a third level, wherein the third level is substantially equal to the first level.